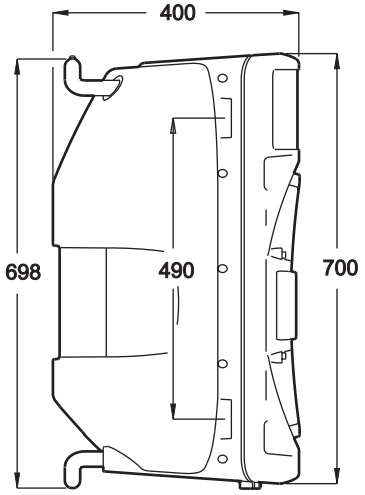
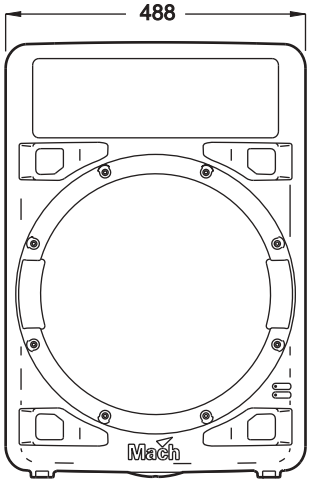
M•FLEX 12XP
M•FLEX 15XP
M•FLEX SXP

user manual

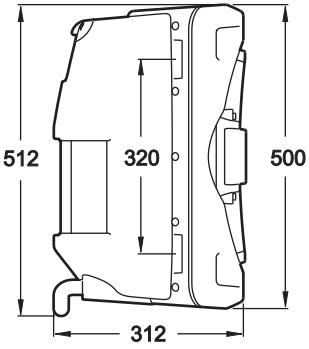
Mach

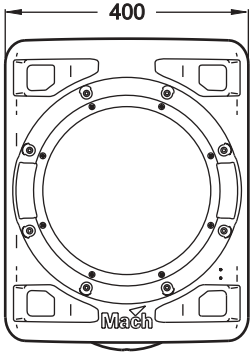
M•FLEX 15/S XP





M•FLEX 12 XP





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INTRODUCTION 1

Thank you for choosing the M•FLEX XP speaker system. The M•FLEX XP series is the next generation of compact, lightweight speakers with passive crossover and offers a number of innovative functions and features.

SAFETY INFORMATION

Read this manual before powering or installing the fixture, follow the safety precautions listed below and observe all warnings in this manual and on the fixture. If you have questions about how to operate the fixture safely, please contact your Mach dealer or call the Martin Professional 24-hour service hotline at +45 70 200 201.

You are cautioned that any change or modifications not expressly approved in this manual could void your authority to operate this equipment.

Warning! ***To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.***

Please heed all warnings and follow all instructions in this user manual when using the M•FLEX products.

- Do not block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus. Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- This equipment should be installed near the socket outlet and disconnection of the device should be easily accessible.
- Do not install in a confined space.
- Do not open the unit because of the risk of electric shock.
- This device must be earthed.
- Be advised that different operating voltages require the use of different types of line cord and attachment plugs. Check the voltage in your area and use the correct type.

- Do not removed the covers. There are no user-serviceable parts inside.
- When installing the fixture above ground level, verify that the structure can hold at least 10 times the weight of all installed devices.
- Block access below the work area whenever installing or removing the fixture.
- Do not modify the fixture or install other than genuine Mach parts.
- Refer all service to a Mach service technician.

DESIGN CONCEPT

The M•FLEX XP series consists of three models. M•FLEX 12XP, M•FLEX 15XP and the M•FLEX SXP sub woofer. Applications include sound reinforcement for live bands, DJ's and AV work, but also monitoring, mixing, installations in bars, cafes, retail stores, fitness studios, airports and other places where ease of use and high output from a compact and light weight speaker system is needed.

The co-axial design of the M•FLEX 12XP makes it the lightest and most compact 12" speaker in the market for moulded speakers. As a dedicated top-box it has very high output and excellent clarity in the critical voice area. And it opens up new application areas in the installation segment with its ability to be flown horizontally due to its uniform dispersion pattern.

M•FLEX 15XP is a strong full-range speaker designed for larger playback and live applications. It is capable of delivering a solid bass output even without a sub woofer, but if needed it can be used together with the M•FLEX SXP sub woofer. The cabinet is designed to be stacked on top of the M•FLEX sub woofer.

All drive units have been customized to the M•FLEX series and developed with emphasis on ultra flat frequency response, highly controlled dispersion patterns and very low distortion. In addition to this, power compression has been kept at an absolute minimum in all models in the M•FLEX series and the internal cabinet design has reduced resonances to a minimum.

APPLICATION

M•FLEX 12XP

The M•FLEX 12XP is a dedicated top-box designed around a co-axial 12" woofer and 1" compression driver. The co-axial design makes the M•FLEX 12XP an ultra compact and lightweight speaker, which can be used for a large verity of applications. Another advantage of the co-axial design is the uniform dispersion pattern of 110 x 110 degrees, enabling the M•FLEX 12XP to be flown horizontally or vertically. The coverage pattern also allows the M•FLEX 12XP to be flown in a line source configuration and it will therefore

work well in highly reverberant applications such as churches, airports or railway stations. When flown in a line source array the output of the M•FLEX 12XP is very high and opens up for use in high power applications such as live or large disco applications up to 300 people.

M•FLEX 15XP

M•FLEX 15XP is the largest model in the M•FLEX family and offers true full-range sound reproduction with high SPL. It is aimed especially at top performance in live venues, but applications also include AV productions, small-scale touring, fixed installations and mobile DJ applications. M•FLEX 15XP can be mounted on a stand and even used as a stage monitor. The integrated handles, lightweight design and sturdy mechanical protection features allow you to handle M•FLEX 15XP with ease in all applications. The 15" unit is a unique construction that features a lightweight chassis. The chassis is very open and enables excellent coupling of the diaphragm to the air in the cabinet. It incorporates venting below the spider to reduce power compression and improve clarity. A special Soft-Roll design is featured in the spider. This design allows for more than +/-18mm excursion. A Kapton voice coil former ensures excellent mechanical stability. The 1" compression driver incorporated a very lightweight diaphragm and with 107 dB sensitivity the unit is more efficient than many 2" drivers. But it still has the advantage of a very wide frequency response and runs flat to 19 kHz. It is mounted behind a 90 x 40 constant directivity horn with excellent coverage control.

M•FLEX SXP

For stronger reproduction of frequencies from 100 Hz and down, the M•FLEX SXP is designed to deliver the punchy kick from a bass drum or a hard low-frequency bass line. At the same time it contributes to an overall increase of dynamics and sound pressure of the M•FLEX top-boxes. The 15" unit in M•FLEX SXP is a powerful construction that features a lightweight chassis. The chassis is very open and enables excellent coupling of the diaphragm to the air in the cabinet. It incorporates venting below the spider to reduce power compression and improve clarity. A special SoftRoll design is featured in the spider. This design allows for more than +/-18 mm. excursion and extended sub bass output. The 39 mm. voice coil former is made of aluminium and ensures excellent heat dissipation and very low power compression. A strong Kapton voice coil former ensures excellent mechanical stability.

INSTALLATION 2

CONNECTIONS

All models in the M•FLEX XP Series are connected through the 1+ / 1- pins on the Speakon terminal. For correct polarity, connect the red (+) terminal on the amplifier to 1+ on the speaker. Likewise, connect the black (-) terminal on the amplifier to 1- on the speaker. If one speaker is operated with reverse signal polarity, the result is a strong decrease in bass output and lack of focus in the mid/high frequencies.

When using the link output from the sub woofer, simply link from the sub woofer output the input on the top-box. Please refer to the recommended amplifier sizes in the specifications on the last page.

All models feature a Speakon speaker terminal with link option. This option allows two or more speakers to be operated in parallel from one amplifier.

When using the link output option, be aware that impedance drops with each additional speaker connected through the link terminal.

The impedance is 4 ohm when two M•FLEX XP speakers are operated in parallel and approximately 2.5 ohm when three are operated in parallel. Always check the recommended minimum load of the amplifier.

CABLES

Always use high quality speaker cables. We recommend the 2x4, 4x4 or 8x4mm2 Mach speaker cable. These cables are professional speaker cables featuring watertight rubber insulation with low sulphur content that ensures that the cable will not oxidize. The cables have low impedance, low capacity and are soft and easy to wind. The following table lists recommended cable lengths:

Cable size/load	8 ohm	4 ohm	2 ohm
1.5# (15 AWG)	15 m (50 ft.)	7.5 m (25 ft.)	4 m (13 ft.)
2.5# (13 AWG)	30 m (100 ft.)	15 m (50 ft.)	7.5 m (25 ft.)
4.0# (11 AWG)	60 m (200 ft.)	30 m (100 ft.)	15 m (50 ft.)

MOUNTING THE SPEAKERS

Flying options

The M•FLEX models can be flown in three different ways:

- Use the custom designed U brackets. Typically used for flying horizontally in low ceiling applications or on truss.
- Insert M6 eye bolts in the four flying points. Typically used when flying vertically.
- Insert the custom designed flying bracket in the four flying points. Typically used for flying M•FLEX in horizontal or vertical clusters

Caution: ***Rigging should only be performed by professionals following safe rigging standards and methods.***

Tripod Mounting

Apart from the versatile flying options, the M•FLEX 12XP and M•FLEX 15XP also feature an integrated 35mm aluminium top-hat adaptor, which enables the box to be placed on a tripod. When using a tripod, note the following:

- Make sure that the tripod is capable of supporting the weight of the speaker (refer to specifications in the back of this manual)
- Check that the tripod is placed on a stable surface
- Remember that tripod legs are trip hazards. Place them away from the audience or place additional weight on the base of the stand to improve stability.

PROTECTION SYSTEM 3

The crossover features a thermal protection system that protects the compression drivers. When power to the compression driver exceeds a safe level, the protection system will increase impedance and reduce the power. The audible result is lower output from the horn.

When this happens, do not increase the high frequency level on the EQ or tone control, as this may cause damage to the protection circuit and eventually to the compression driver.

When the power returns to a safe level, the protection circuit restores full signal to the horn and the audio output returns to normal. The thermal protection has been designed so that it combines efficient protection with excellent sound quality. It is however not a limiter, and is only designed to catch mistakes such as microphone feedback.

In case the protection system is continuously engaged, it will develop a memory and start to come in at increasingly low levels. If this happens, either the system is under-specified or the amplifier is clipping.

SERVICE 4

Refer all service, other than that described here, to qualified service personnel.

CARE AND MAINTENANCE

The M•FLEX speakers have been designed for mobile use and will - when used with common sense care - provide flawless performance for many years. However, we recommend that the following points are noted:

- If the speakers have been subjected to very low temperatures, it is advisable to allow for a one hour warm up period before operating them at full output. This to avoid the risk of short-circuiting the amplifier and processor PCB due to condense water.
- The M•FLEX cabinets can be used in short-term out-door applications, but have not been designed for long-term outdoor installations.
- Clean the cabinets with a general-purpose household detergent. Grease or marking tape residue can be removed with alcohol or mineral spirits.
- Protective speaker covers are available for the M•FLEX models and we strongly recommend these if the speakers are frequently transported.

SPECIFICATIONS

A

M•FLEX 12XP Specifications

SYSTEM PERFORMANCE

Max long term SPL (calculated)	121 dB
Max peak SPL (calculated)	127 dB
Frequency range +/- 3dB	85Hz - 20 KHz
Power rating IEC 268	250 watt
Peak power rating	1000 watt
Sensitivity	97dB
Low frequency transducer	12"
High frequency transducer	1"
Dispersion	110 x 110

PHYSICAL

Flying attachment	4 points for M6 threaded hardware
Connectors	Speakon NL4 with link
Dimensions	50 x 39 x 32 cm (19.7 x 15.4 x 12.6 in.)
Weight	10.5 kg (23 lbs)

ACCESSORIES

Cover for M•FLEX12XP	P/N 93942014
Stand	P/N 93943050
Flying bracket for cluster and array configuration:	P/N 93944010

ORDERING INFORMATION

M•FLEX 12XP	P/N 93601006

M•FLEX 15XP Specifications

SYSTEM PERFORMANCE

Power rating IEC 268	310 watt
Peak power rating	1240 watt
Sensitivity	99dB
Max SPL (calculated long term)	124 dB
Max SPL, Peak	130 dB
Frequency range +/- 3dB	57Hz - 20 KHz
Low frequency transducer	15"
High frequency transducer	1"
Dispersion	90 x 40

PHYSICAL

Flying attachment: . . . . . 4 points for M6 threaded hardware
Connectors . . . . . .Speakon NL4 with link
Dimensions. . . . . 67 x 48 x 40 cm (26 x 19 x 16 in.)
Weight. . . . . .16.5 kg (36 lbs)

ACCESSORIES

Cover for M•FLEX15XP & M•FLEX SXP . . . . . .P/N 93942015
Stand. . . . . .P/N 93943050
Flying bracket for cluster and array configuration. . . . . .P/N 93944010

ORDERING INFORMATION

M•FLEX 15XP . . . . . .P/N 93601020

M•FLEX SXP Specifications

SYSTEM PERFORMANCE

Power rating IEC 268. . . . . 310 watt
Peak power rating. . . . . 1240 watt
Sensitivity. 98dB
Max SPL, calculated long term . . . . . 123 dB
Max SPL, Peak. . . . . 129 dB
Frequency range +/- 3dB . . . . . 48Hz - 440 Hz
Low frequency transducer . . . . . 15"

PHYSICAL

Flying attachment: . . . . . 4 points for M6 threaded hardware
Connectors . . . . . .Speakon NL4 with link
Dimensions. . . . . 67 x 48 x 40 cm (26 x 19 x 16 in.)
Weight. . . . . .15.5 kg (34 lbs)

ACCESSORIES

Cover for M•FLEX15XP & M•FLEX SXP . . . . . .P/N 93942015
Flying bracket for cluster and array configuration. . . . . .P/N 93944010

ORDERING INFORMATION

M•FLEX SXP . . . . . .P/N 93602005

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